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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,394	03/09/2004	Takuya Tsukagoshi	890050.468	1892
500	7590	11/01/2005	EXAMINER	
SEED INTELLECTUAL PROPERTY LAW GROUP PLLC			LAVARIAS, ARNEL C	
701 FIFTH AVE			ART UNIT	
SUITE 6300			PAPER NUMBER	
SEATTLE, WA 98104-7092			2872	

DATE MAILED: 11/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H-A

**Office Action Summary**

Application No.

10/796,394

Applicant(s)

TSUKAGOSHI, TAKUYA

Examiner

Arnel C. Lavarias

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 9/17/04, 3/9/04.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/17/04, 3/9/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawings*

2. The drawings were received on 3/9/04. These drawings are acceptable.

### *Specification*

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to *a single paragraph* on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. *It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.*

4. The abstract of the disclosure is objected to because of the following informalities:

Abstract has more than one paragraph.

Abstract, line 10- 'According to the present invention, it' should read 'It'.

Correction is required. See MPEP § 608.01(b).

5. The disclosure is objected to because of the following informalities:

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Page 6, line 27- '101' should read '102'

Page 7, line 17- the abbreviation "SHG" has not been defined. The full, unabbreviated word or phrase must be included the first time an abbreviation is used.

Page 8, lines 20, 21- both instances of 'lens' should read 'mirror'

Page 13, line 3- '301' should read '401'.

Appropriate correction is required.

### ***Claim Objections***

6. Claims 1-6 are objected to because of the following informalities:

Claim 1 includes the abbreviation "CCD" in line 6. The full, unabbreviated word or phrase must be included the first time an abbreviation is used. Claims 2-6 are dependent on Claim 1, and hence inherit the deficiencies of Claim 1.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by Chou et al. (W. Chou, M. A. Neifeld, 'Interleaving and error correction in volume holographic memory systems', Appl. Opt., vol. 37, no. 29, October 10, 1998, pp. 6951-6968.), of record.

Chou et al. discloses a holographic recording and reproducing apparatus (See for example Figure 1; Section 2A) for recording data as phase information of light in a holographic recording medium (See 'memory' in Figure 1) by projecting a signal beam and a reference beam thereonto, the holographic recording and reproducing apparatus comprising at least a spatial light modulator (See 'SLM' in Figure 1), a Fourier transform lens (See 'lens 1' in Figure 1), a reverse Fourier transform lens (See 'lens 2' in Figure 1), and a CCD image sensor (See 'CCD' in Figure 1), the holographic recording medium being disposed between the Fourier transform lens and the reverse Fourier transform lens, and the focal length of the Fourier transform lens is set to be different (e.g. longer) than that of the reverse Fourier transform lens (See Sections 2C, 2D).

9. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Waldman et al. (U.S. Patent Application Publication US 2005/0134948 A1).

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

Waldman et al. discloses a holographic recording and reproducing apparatus (See Figure 1) for recording data as phase information of light in a holographic recording medium (See 114 in Figure 1) by projecting a signal beam and a reference beam

thereonto, the holographic recording and reproducing apparatus comprising at least a spatial light modulator (See 104 in Figure 1), a Fourier transform lens (See 108 in Figure 1), a reverse Fourier transform lens (See 116 in Figure 1), and a CCD image sensor (See 124 in Figure 1), the holographic recording medium being disposed between the Fourier transform lens and the reverse Fourier transform lens, and the focal length of the Fourier transform and focal length of the reverse Fourier transform lens being different from each other (See ' $f_1$ ', ' $f_2$ ' in Figure 1).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al.

Chou et al. discloses the invention as set forth above, except for the focal length of the reverse Fourier transform lens being set longer than that of the Fourier transform lens.

However, since Chou et al. already discloses that the focal length of the Fourier transform lens may be longer than or equal to that of the reverse Fourier transform lens, one of ordinary skill would have also been likely to design a similar holographic recording and reproducing apparatus utilizing an asymmetrical 4F lens design, wherein the focal length of the Fourier transform lens is shorter than that of the reverse Fourier transform lens (i.e. the focal length of the reverse Fourier transform lens is longer than that of the Fourier

transform lens), particularly when there is a mismatch in pixel sizes between the SLM and the CCD. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the focal length of the reverse Fourier transform lens be set longer than that of the Fourier transform lens in the holographic recording and reproducing apparatus of Chou et al., for the purpose of optimizing the light throughput of the optical system, while reducing unwanted errors due to optical noise.

12. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou et al. in view of Bernal et al. (M. P. Bernal, G. W. Burr, H. Coufal, M. Quintanilla, 'Noise in high-areal-density holographic data storage systems', Opt. Soc. America, Washington, D.C., USA, May 1998, pp. 21-22.), of record.

Chou et al. discloses the invention as set forth above in Claims 1-3, except for the apparatus further comprising a pinhole disposed at a confocal point of the Fourier transform lens and the reverse Fourier transform lens. However, Bernal et al. similarly teaches a digital holographic storage system utilizing a 4F lens design (See Figure 1), wherein an aperture is placed at the Fourier plane of the 4F system (it is noted that this Fourier plane occurs at the confocal point of the Fourier (See  $L_1$  in Figure 1) and reverse Fourier (See  $L_2$  in Figure 1) lenses at point 'D'). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the apparatus of Chou et al. further comprise a pinhole disposed at a confocal point of the Fourier transform lens and the reverse Fourier transform lens, as taught Bernal et al., for the purpose of minimizing crosstalk noise.

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*Conclusion*

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Arnel C. Lavarias  
Patent Examiner  
Group Art Unit 2872  
10/31/05